

Annual Peak-Flow Frequency Analysis

For more information on the contents of this documentation, see Kessler and others (2013).

Streamgauge number and name:

05316920 Cottonwood River tributary near Sanborn, Minn.

Peak-flow information:

Number of systematic peak flows in record	27
Systematic period begins	1966
Systematic period ends	1994
Length of systematic record	29
Years without information	2
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.167
Standard error of generalized skew	0.426
Low-outlier method	Bulletin 17B Grubbs-Beck test

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
1.4317	0.4513	-0.292

Outlier criteria and number of peak flows exceeding:

Low	2.0	0
High	370.2	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
1.4317	0.4513	-0.225	

Annual frequency curve at selected exceedance probabilities:

[WIE, Weighted independent estimate; --, not computed]

Exceedance probability	Peak estimate	Lower-95 level	Upper 95 level	WIE estimate	Lower-95 WIE level	Upper 95 WIE level
0.9950	1.5	0.6	2.8	--	--	--
0.9900	2.0	0.9	3.6	--	--	--
0.9500	4.6	2.4	7.2	--	--	--
0.9000	7.0	4.0	10.4	--	--	--
0.8000	11.4	7.3	16.2	--	--	--
0.6667	17.8	12.3	24.8	--	--	--
0.5000	28.1	20.1	39.5	25.9	17.9	37.6
0.4292	33.8	24.3	48.1	--	--	--
0.2000	65.4	46.1	102.0	57.8	39.6	84.3
0.1000	99.6	67.4	170.0	84.6	55.9	128.0
0.0400	153.0	98.6	289.0	123.0	76.7	199.0
0.0200	201.0	124.0	405.0	157.0	92.1	268.0
0.0100	255.0	152.0	545.0	192.0	107.0	346.0
0.0050	315.0	183.0	713.0	--	--	--
0.0020	406.0	226.0	981.0	290.0	140.0	600.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1966	72.0	--
1967	21.0	--
1968	25.0	--
1969	31.0	--
1970	44.0	--
1971	76.0	--
1972	6.7	--
1973	7.0	--
1974	12.0	--
1975	14.0	--
1976	10.0	--
1977	103.0	--
1978	21.0	--
1979	25.0	--
1980	14.0	--
1981	2.4	--
1982	63.0	--
1983	69.0	--
1984	79.0	--
1985	94.0	--
1986	61.0	--
1987	10.0	--
1988	10.0	--
1989	13.0	--
1990	24.0	--
Gap in systematic record		
1993	134.0	--
1994	98.0	--